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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,277	02/13/2001	Yoshiki Ohta	Q62776	9440

EXAMINER	
MICHALSKI, JUSTIN I	

ART UNIT	PAPER NUMBER
2644	4

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Washington, DC 20037-3202

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/781,277	OHTA, YOSHIKI	
	Examiner	Art Unit	
	Justin Michalski	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 2/13/2001.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 3, 5, 6, and 9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 6, and 8 respectively of copending Application No. 09/891276. Although the conflicting claims are not identical, they are not patentably distinct from each other because a frequency divider with in-channel level adjustors as claimed in the instant application can be interpreted as an equalizer and frequency characteristic correcting means as claimed in application 09/891276.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Plunkett (US Patent 5,386,478).

Regarding Claim 1, Plunkett discloses an automatic sound field correcting system in an audio system for supplying a plurality of input audio signals (Figure 1, outputs of source block 22) to a plurality of sound generators (speakers 14) via a plurality of signal transmission lines (lines from control modules 24 to speakers 14), each of the plurality of signal transmission lines including a frequency divider (modules contain circuitry for equalization (i.e. frequency divider) (Column 2, lines 36-41) having a plurality of frequency discriminators each having a frequency discriminating characteristic different in frequency band (Plunkett discloses equalizer bands (i.e. frequency discriminators)) (Column 2, lines 54-55), a plurality of in-channel level adjustors (i.e. separately controllable frequency bands) (Column 3, lines 67-68) corresponding to the respective frequency discriminators, for adjusting levels of respective signals that are discriminated by the frequency discriminators (Plunkett discloses separately controllable frequency bands (i.e. in-channel level adjustors to control separate band) (Paragraph bridging columns 3 and 4), a channel-to-channel level adjustor (Plunkett discloses balance adjustment, i.e. channel-to-channel level

adjustor, in modules 24) (Column 3, lines 49-52) for adjusting levels of the audio signals, and a delay unit for adjusting delay times of the audio signals (Figure 2, time delay module 40), whereby the input audio signals are supplied to the sound generator via the frequency dividers (equalizer within modules 24), the in-channel level adjustors (separately controllable frequency bands within modules 24), the channel-to-channel level adjustor (i.e. balance adjustment within modules 24), and the delay unit (delay unit 40), said correcting system comprising: a noise generator for supplying a noise to the respective signal transmission lines independently in correcting a sound field (Plunkett discloses test signal (i.e. noise) to each loudspeaker) (Column 3, lines 28-30); a detector for detecting reproduced sounds generated from the noise reproduced by the respective sound generators (microphone 36); an in-channel level corrector for correcting an adjusted amount of the plurality of in-channel level adjustors based on detection results of the detector (separately controllable frequency bands (i.e. in-channel level adjustors)) (Paragraph bridging columns 3 and 4); a channel-to-channel level corrector for correcting an adjusted amount of the plurality of channel-to-channel level adjustors based on the detection results of the detectors (Plunkett discloses balance adjustment (i.e. channel-to-channel adjustors) of gain controlled amplifiers in modules 24) (Column 3, lines 51-52); and a phase characteristic corrector for calculating phase characteristics of the reproduced sounds reproduced by the sound generator based on the detection results of the detector and also correcting delay times of the delay unit based on calculated phase characteristics (Plunkett discloses delay

balance (i.e. phase corrector) based on results from microphone 36) (Column 4, lines 5-16).

Regarding Claim 2, Plunkett further discloses a controller for causing the in-channel level corrector (modules 24) to correct an adjusted amount of the channel-to-channel level adjustor (balance adjustment of modules 24) (Column 3, line 52) and causing the phase characteristic corrector (delay unit 40) to correct the delay times of the delay unit (Column 4, lines 5-8) after causing the in-channel level corrector to correct the adjusted amount of the in-channel level adjustor (Column 3, lines 51-52).

Regarding Claim 4, Plunkett further discloses the channel-to-channel level corrector (balance adjustor 24) corrects respective adjusted amounts of the plurality of channel-to-channel level adjustor such that a total level of all reproduced sounds reproduced by the plurality of sound generator at a listening position is made substantially equal over a full audio frequency band (Plunkett discloses any unbalance (i.e. over full frequency range) is corrected) (Column 3, lines 49-52).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett as applied to claim 1 above in view of Koyama et al. (US Patent 5,581,621).

Regarding Claim 3, Plunkett discloses a system as stated apropos of claim 1 above but does not disclose the use of pink noise. Koyama et al. discloses an automatic adjustment system of an audio device using pink noise (Column 30, line 67). Koyama et al. discloses that the noise is received by the microphone and analyzed by unit 60 which determines the signal level in each of the frequency bands covering the audio frequency spectrum. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pink noise in order to measure and analyze the response of all frequency bands at the same time in order to obtain a more efficient adjustment method.

7. Claims 5-9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett in view of Koyama et al. (US Patent 5,581,621).

Regarding Claim 5, Plunkett discloses an automatic sound field correcting system in an audio system for supplying a plurality of input audio signals (Figure 1, outputs of source block 22) to a all-frequency-band sound generators (speakers 14) via a plurality of signals transmission lines (lines from control modules 24 to speakers 14), each of the plurality of signal transmission lines including a frequency divider (modules 24 contain circuitry for equalization (i.e. frequency divider) (Column 2, lines 36-41) having a plurality of frequency discriminators each having a frequency discriminating characteristic different in frequency band (Plunkett discloses equalizer bands (i.e. frequency discriminators)) (Column 2, lines 54-55), a plurality of in-channel level adjustors (i.e. separately controllable frequency bands) (Column 3, lines 67-68)

corresponding to the respective frequency discriminators, for adjusting the levels of the respective signals that are discriminated by the frequency discriminator (Plunkett discloses separately controllable frequency bands (i.e. in-channel level adjustors to control separate band) (Paragraph bridging columns 3 and 4), a channel-to-channel level adjustor (balance adjustment, i.e. channel-to-channel level adjustor, in modules 24)(Column 3, lines 49-52) for adjusting levels of the audio signals, and a delay unit for adjusting delay times of the audio signals (Figure 2, time delay module 40), whereby the input audio signals are supplied to the sound generator via the frequency divider (equalizer within modules 24), the in-channel level adjustors, the channel-to-channel level adjustor (separately controllable frequency bands within modules 24), and the delay unit (delay unit 40), said correcting system comprising: a noise generator for supplying a noise to the respective signal transmission lines independently in correcting a sound field (Plunkett discloses test signal (i.e. noise) to each loudspeaker) (Column 3, lines 28-30); a detector for detecting reproduced sounds generated from the noise reproduced by the respective sound generators (microphone 36); an in-channel level corrector for correcting an adjusted amount of the plurality of in-channel level adjustor based on detection results of the detector (separately controllable frequency bands (i.e. in-channel level adjustors)) (Paragraph bridging columns 3 and 4); a first and second channel-to-channel level correctors (i.e. balance adjustment) (Column 3, lines 51-52) for correcting an adjusted amount of the plurality of channel-to-channel level adjustors (modules 24) of the signal transmission lines, in which the all-frequency band sound generator are provided, based on the detection results of the detector; and a phase

characteristic corrector for calculating phase characteristics of the reproduced sounds reproduced by the respective sound generators based on the detection results of the detector and also correcting delay times of the delay unit based on calculated phase characteristics (Plunkett discloses delay balance (i.e. phase corrector) based on results from microphone 36) (Column 4, lines 5-16).

Although Plunkett discloses a plurality of signal transmission lines and generators, Plunkett does not disclose a low frequency band exclusively reproducing sound generator. Koyama et al. discloses an automatic adjustment system of an audio device (Figure 1) comprising a low frequency band exclusively reproducing sound generator (Figure 2, converter 26 and signal 2a for subwoofer). Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to include a low frequency sound generator along with other channels in order to obtain a more high fidelity audio output from the system.

Regarding Claim 6, Plunkett further discloses a controller (Command module 28) for causing the first channel-to-channel level corrector (first module 24) to perform the correction, then causing the phase characteristic corrector (delay unit 40) to perform the correction, and then causing the second channel-to-channel level corrector (second module 24) to perform the correction after causing the in-channel level corrector to perform the correction (Column 3, lines 51-52).

Regarding Claim 7, Plunkett further discloses the noise generator (i.e. test signal Column 3, line 28) supplies noise in the respective corrections of the in-channel level corrector and the first channel-to-channel level corrector, supplies the noise in the respective corrections of the phase characteristic corrector, and supplies the noise in the correction of the second channel-to-channel level corrector (all in module 24). Plunkett does not disclose the use of pink noise. Koyama et al. further discloses the use of using pink noise as a reference signal (Column 13, lines 23-26).

Regarding Claim 8, Koyama et al. further discloses balancing of gain of the different channels (i.e. channel-to-channel level correctors) (Column 3, lines 25-40) where a low frequency band exclusively reproducing sound generator (i.e. woofer) is set so the equalizer can achieve a desired result (i.e. substantially equal reproduced sound).

Regarding Claim 9, Plunkett further discloses the phase characteristic corrector (time delay 40) calculates a correlation between the detection results of the detector and then detects the phase characteristic based on a correlation value obtained by calculation (Plunkett discloses delay balance (i.e. phase corrector) based on results from microphone 36) (Column 4, lines 5-16).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on 8 Hours, 5 day/week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JIM

XU MEI
PRIMARY EXAMINER